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Atty Dkt No. YOR920000693US2
R&A No. 5075-0029.20
PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Ratnam SOORIYAKUMARAN et al.

Continuation-in-Part of Serial No.: 09/748,071 Group Art Unit: Unassigned

Filing Date: Concurrently herewith Examiner: Unassigned

Title: SUBSTANTIALLY TRANSPARENT AQUEOUS BASE SOLUBLE POLYMER SYSTEM FOR USE IN 157 NM RESIST APPLICATIONS

11046 U.S. PTO
10/079289
02/19/02

#2

D.6.

4-16-02

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
Washington, DC 20231

Sir:

This is an Information Disclosure Statement submitted for the Examiner's consideration. Applicants respectfully request that the Examiner review and make of record the references identified below.

The references identified below and listed on the attached PTO-1449 forms as Reference Nos. AA-BO were disclosed and/or cited in parent application Serial No. 09/748,071, filed December 21, 2000, and, as such, copies thereof are not included pursuant to the provisions of 37 CFR § 1.98(d).

U.S. PATENT DOCUMENTS		
Patent No.	Issue Date	Patentee
Serial No. 09/514,212	Filed 2/28/00	Brock et al.
4,189,323	2/19/80	Buhr
4,442,197	4/10/84	Crivello et al.
4,491,628	1/1/85	Ito et al.
4,603,101	7/29/86	Crivello
4,624,912	11/25/86	Zweifel et al.
4,855,017	8/8/89	Douglas
5,338,818	8/16/94	Brunsvold et al.
5,344,742	9/6/94	Sinta et al.
5,362,663	11/8/94	Bronner et al.

U.S. PATENT DOCUMENTS		
Patent No.	Issue Date	Patentee
5,385,804	1/31/95	Premalatha et al.
5,399,462	3/21/95	Sachdev et al.
5,429,710	7/4/95	Akiba et al.
5,562,801	10/8/96	Nulty
5,580,694	12/3/96	Allen et al.
5,618,751	4/8/97	Golden et al.
5,679,495	12/21/97	Yamachika et al.
5,744,376	4/28/98	Chan et al.
5,801,094	9/1/98	Yew et al.
5,985,524	11/16/99	Allen et al.
6,087,064	7/11/00	Lin et al.

FOREIGN PATENT DOCUMENTS		
Document No.	Publication Date	Country
CA 1,204,547	5/13/86	Canada
JP 1-293339	11/27/89	Japan

OTHER DOCUMENTS	
Abe et al. (1995), "Study of ArF Resist Material in Terms of Transparency and Dry Etch Resistance," <i>Journal of Photopolymer Science and Technology</i> 8(4):637-642.	
Allen et al. (1995), "Resolution and Etch Resistance of a Family of 193 nm Positive Resists," <i>Journal of Photopolymer Science and Technology</i> 8(4):623-636.	
Allen et al. (1997), "Deep-UV Resist Technology: The Evolution of Materials and Processes for 250-nm Lithography and Beyond," <i>Handbook of Microlithography, Micromachining, and Microfabrication, Vol. 1: Microlithography</i> , P. Raj-Coudhury, Ed., p.321-375.	
Baney et al. (1995), "Silsequioxanes," <i>Chemical Reviews</i> 95(5):2409-1430.	
Crawford et al. (2000), "New Materials for 157 nm Photoresists: Characterization and Properties," <i>Proceedings of SPIE</i> 3999:357-364.	
Fujigaya et al. (2000), "Chemically Amplified Positive Resist Based on Silsequioxane for 157nm Lithography," <i>Extended Abstracts, 12th International Conference on Photopolymers - Principles, Processes, and Materials</i> , The Legends Resort and Country Club, McAfee, New Jersey, page P39.	
Hatakeyama et al. (1998), "Investigation of Discrimination Enhancement in Polysilsequioxane Based Positive Resist for ArF Lithography," <i>Advances in Resist Technology and Processing XV, Proceedings of SPIE</i> 3333:62-72.	
Ito et al. (1982), "Polymerization of Methyl α -(Trifluoromethyl)acrylate and α -(Trifluoromethyl)acrylonitrile and Copolymerization of These Monomers with Methyl Methacrylate," <i>Macromolecules</i> 15:915-920.	
Ito et al. (1987), "Anionic Polymerization of α -(Trifluoromethyl)Acrylate," <i>Recent Advances in Anionic Polymerization</i> , T.E. Hogen-Esch and J. Smid, Eds., Elsevier Science Publishing Co., Inc., pp. 421-430.	
Ito et al. (1997), "Synthesis and Evaluation of Alicyclic Backbone Polymers for 193 nm Lithography," <i>Micro- and Nanopatterning Polymers, ACS Symposium Series 706</i> , Chapter 16, pp. 208-223.	
Onishi et al. (1991), "Acid Catalyzed Resist for KrF Excimer Laser Lithography," <i>Journal of Photopolymer Science and Technology</i> 4(3):337-340.	
Kunz et al. (1999), "Outlook for 157-nm Resist Design," <i>Proceedings of SPIE</i> 3678:13-23.	
Lin et al. (1998), "Extension of 248 nm Optical Lithography: A Thin Film Imaging Approach," <i>Advances in Resist Technology and Processing XV, Proceedings of SPIE</i> 3333:278-288.	
Patterson et al. (2000), "Polymers for 157 nm Photoresist Applications: A Progress Report," <i>Advances in Resist Technology and Processing XVII, Proceedings of SPIE</i> 3999:265-374.	
Przybilla et al. (1992), "Hexafluoroacetone in Resist Chemistry: A Versatile New Concept for Materials for Deep UV Lithography," <i>Advances in Resist Technology and Processing IX, Proceedings of SPIE</i> 1672:500-512.	

OTHER DOCUMENTS
Reichmanis et al. (1991), "Chemical Amplification Mechanisms for Microlithography," <i>Chemistry of Materials</i> 3:394-407.
Schmaljohann et al. (2000), "Design Strategies for 157 nm Single-Layer Photoresists: Lithographic Evaluation of a Poly(α -Trifluoromethyl Vinyl Alcohol) Copolymer," <i>Advances in Resist Technology and Processing XVII, Proceedings of SPIE</i> 3999:330-334.
Willson et al. (1983), "Poly(Methyl α -Trifluoromethylacrylate) as a Positive Electron Beam Resist," <i>Polymer Engineering and Science</i> 23(18):1000-1003.

The references identified below and listed on the attached PTO-1449 forms as Reference Nos. BP and BQ are newly cited, and, as such, copies thereof are enclosed.

OTHER DOCUMENTS
Sooriyakumaran et al. (2001), "Silicon-Containing Resists for 157 nm Applications," <i>SPIE's 26th Annual International Symposium and Education Program on Microlithography</i> 4345-35:266.
Sooriyakumaran et al. (2001), "Silicon-Containing Resists for 157 nm Applications," <i>Proceedings of SPIE - Advances in Resist Technology and Processing XVIII</i> , 4345(1):319-326.

Applicants would appreciate the Examiner's initialing and returning the forms to indicate that all the references have been reviewed and made of record.

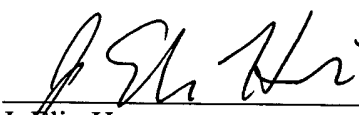
This Information Disclosure Statement is not intended as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that any of the above references constitutes prior art to the present application within the meaning of 35 USC § 102.

As this Information Disclosure Statement is being filed concurrently with the application, no fee is required.

Respectfully submitted,

2/19/02

Date

By: 

J. Elin Hartrum
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ATTY. DOC. NO.:

YOR920000693US2

CIP OF SERIAL NO.:

09/748,071

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use several sheets if necessary)

APPLICANT:

Ratnam SOORIYAKUMARAN et al.

FILING DATE:

Concurrently herewith

GROUP:

Unassigned

(37 CFR 1.98(b))

U.S. PATENT DOCUMENTS

EXAMINER INITIALS	CITE NO.	PATENT NUMBER	ISSUE DATE	PATENTEE	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA	Ser. No. 09/514,212		Brock et al.			2/28/00
	AB	4,189,323	2/19/80	Buhr			
	AC	4,442,197	4/10/84	Crivello et al.			
	AD	4,491,628	1/1/85	Ito et al.			
	AE	4,603,101	7/29/86	Crivello			
	AF	4,624,912	11/25/86	Zweifel et al.			
	AG	4,855,017	8/8/89	Douglas			
	AH	5,338,818	8/16/94	Brunsvold et al.			
	AI	5,344,742	9/6/94	Sinta et al.			
	AJ	5,362,663	11/8/94	Bronner et al.			
	AK	5,385,804	1/31/95	Premalatha et al.			
	AL	5,399,462	3/21/95	Sachdev et al.			
	AM	5,429,710	7/4/95	Akiba et al.			
	AN	5,562,801	10/8/96	Nulty			
	AO	5,580,694	12/3/96	Allen et al.			
	AP	5,618,751	4/8/97	Golden et al.			
	AQ	5,679,495	12/21/97	Yamachika et al.			
	AR	5,744,376	4/28/98	Chan et al.			
	AS	5,801,094	9/1/98	Yew et al.			
	AT	5,985,524	11/16/99	Allen et al.			
	AU	6,087,064	7/11/00	Lin et al.			

FOREIGN PATENT DOCUMENTS

EXAMINER INITIALS	CITE NO.	DOCUMENT NUMBER	PUBLICATION DATE	COUNTRY OR PATENT OFFICE	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	AV	CA 1,204,547	5/13/86	Canada				
	AW	JP 1-293339	11/27/89	Japan				

OTHER DOCUMENTS — NONPATENT LITERATURE DOCUMENTS

EXAMINER INITIALS	CITE NO.	INCLUDE NAME OF AUTHOR, TITLE OF ARTICLE (IF APPROPRIATE), TITLE OF PUBLICATION, DATE, PAGE(S), VOLUME-ISSUE NUMBER(S), PUBLISHER, AND PLACE OF PUBLICATION
	AX	Abe et al. (1995), "Study of ArF Resist Material in Terms of Transparency and Dry Etch Resistance," <i>Journal of Photopolymer Science and Technology</i> 8(4):637-642.
	AY	Allen et al. (1995), "Resolution and Etch Resistance of a Family of 193 nm Positive Resists," <i>Journal of Photopolymer Science and Technology</i> 8(4):623-636.
	AZ	Allen et al. (1997), "Deep-UV Resist Technology: The Evolution of Materials and Processes for 250-nm Lithography and Beyond," <i>Handbook of Microlithography, Micromachining, and Microfabrication, Vol. 1: Microlithography</i> , P. Raj-Coudhury, Ed., p.321-375.
	BA	Baney et al. (1995), "Silsequioxanes," <i>Chemical Reviews</i> 95(5):2409-1430.
	BB	Crawford et al. (2000), "New Materials for 157 nm Photoresists: Characterization and Properties," <i>Proceedings of SPIE</i> 3999:357-364.
	BC	Fujigaya et al. (2000), "Chemically Amplified Positive Resist Based on Silsequioxane for 157nm Lithography," <i>Extended Abstracts, 12th International Conference on Photopolymers - Principles, Processes, and Materials</i> , The Legends Resort and Country Club, McAfee, New Jersey, page P39.

EXAMINER SIGNATURE:

DATE CONSIDERED:

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use several sheets if necessary)

(37 CFR 1.98(b))

ATTY. DOC. NO.:
YOR92000693US2CIP OF SERIAL NO.:
09/748,071APPLICANT:
Ratnam SOORIYAKUMARAN et al.FILING DATE:
Concurrently herewithGROUP:
Unassigned**U.S. PATENT DOCUMENTS**

EXAMINER INITIALS	CITE NO.	PATENT NUMBER	ISSUE DATE	PATENTEE	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	BD	Hatakeyama et al. (1998), "Investigation of Discrimination Enhancement in Polysilsesquioxane Based Positive Resist for ArF Lithography," <i>Advances in Resist Technology and Processing XV, Proceedings of SPIE</i> 3333:62-72.					
	BE	Ito et al. (1982), "Polymerization of Methyl α -(Trifluoromethyl)acrylate and α -(Trifluoromethyl)acrylonitrile and Copolymerization of These Monomers with Methyl Methacrylate," <i>Macromolecules</i> 15:915-920.					
	BF	Ito et al. (1987), "Anionic Polymerization of α -(Trifluoromethyl)Acrylate," <i>Recent Advances in Anionic Polymerization</i> , T.E. Hogen-Esch and J. Smid, Eds., Elsevier Science Publishing Co., Inc., pp. 421-430.					
	BG	Ito et al. (1997), "Synthesis and Evaluation of Alicyclic Backbone Polymers for 193 nm Lithography," <i>Micro- and Nanopatterning Polymers, ACS Symposium Series 706</i> , Chapter 16, pp. 208-223.					
	BH	Onishi et al. (1991), "Acid Catalyzed Resist for KrF Excimer Laser Lithography," <i>Journal of Photopolymer Science and Technology</i> 4(3):337-340.					
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	BK	Patterson et al. (2000), "Polymers for 157 nm Photoresist Applications: A Progress Report," <i>Advances in Resist Technology and Processing XVII, Proceedings of SPIE</i> 3999:265-374.					
	BL	Przybilla et al. (1992), "Hexafluoroacetone in Resist Chemistry: A Versatile New Concept for Materials for Deep UV Lithography," <i>Advances in Resist Technology and Processing IX, Proceedings of SPIE</i> 1672:500-512.					
	BM	Reichmanis et al. (1991), "Chemical Amplification Mechanisms for Microlithography," <i>Chemistry of Materials</i> 3:394-407.					
	BN	Schmaljohann et al. (2000), "Design Strategies for 157 nm Single-Layer Photoresists: Lithographic Evaluation of a Poly(α -Trifluoromethyl Vinyl Alcohol) Copolymer," <i>Advances in Resist Technology and Processing XVII, Proceedings of SPIE</i> 3999:330-334.					
	BO	Willson et al. (1983), "Poly(Methyl α -Trifluoromethylacrylate) as a Positive Electron Beam Resist," <i>Polymer Engineering and Science</i> 23(18):1000-1003.					
	BP	Sooriyakumaran et al. (2001), "Silicon-Containing Resists for 157 nm Applications," <i>SPIE's 26th Annual International Symposium and Education Program on Microlithography</i> 4345-35:266.					
	BQ	Sooriyakumaran et al. (2001), "Silicon-Containing Resists for 157 nm Applications," <i>Proceedings of SPIE - Advances in Resist Technology and Processing XVIII</i> , 4345(1):319-326.					

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